

## SECTION 619 SIGNS, DELINEATORS, AND GUIDEPOSTS

**619.01 DESCRIPTION.** This work is furnishing, fabricating, erecting, removing, and re-setting signs, delineators, and guideposts.

**619.02 MATERIALS.** Furnish materials meeting the following requirements:

Signing Material	.....	Subsections 704.01
Guideposts	.....	Subsection 704.03
Delineators	.....	Detailed Drawings

### 619.03 CONSTRUCTION REQUIREMENTS.

**619.03.1 Definitions.** The following definitions apply to the signing work in the Contract.

- A. **New.** Signs designated "New" are to be furnished new and erected on new supports at the specified locations.
- B. **Re-use.** Signs designated "Re-use" are to be removed from the existing supports and remounted on new supports at the specified locations.
- C. **Replace.** Signs designated "Replace" are to be removed and replaced with the specified new signs, including new supports, at the existing or specified new locations.
- D. **Replace Sign Face.** Signs designated "Replace Sign Face" are to be removed from the supports and replaced with the specified new signs using the existing supports.
- E. **Use As Is.** Signs designated "Use As Is" are to be left in place.
- F. **Re-set.** Signs designated "Re-set" are to be removed and re-set at the specified locations using the existing sign faces and supports.
- G. **Remove.** Signs designated "Remove" are to be removed, including the sign or sign assembly and sign supports.

**619.03.2 Design Calculations and Shop Drawings.** Submit a written request for the sign design calculations from the Department's Traffic Section in Helena at least 20 working days before sign fabrication. Make the request for the calculations for the specified guide signs, special design signs, and other signs shown in the Montana Sign and Sign Materials book but not in the FHWA Standard Highway Signs Book.

Submit to the Project Manager, at least 30 working days before sign fabrication, 10 copies of Contractor approved (stamped) shop drawings and welding procedures for sign bridges, and overhead cantilever sign structures. Submit shop drawings on minimum size 11 x 17-inch sheets (A3 paper); welding procedures on 8 ½ x 11-inch (A4 paper) sheets.

The Department has 15 working days upon receipt of the drawings for drawing review. Drawings returned to the Contractor for corrections or additional information must be re-submitted to the Project Manager within 15 working days of receipt.

After the structural steel shop drawings and welding procedures have been reviewed and checked by the Department, all required corrections will be returned to the Contractor who must make the corrections and re-submit 10 copies of the

corrected drawings and welding procedures for final review and approval within 15 days. All final drawings must be stamped "Approved" by the Department before fabrication begins.

Submit 5 copies of shop drawings and current approved weld procedures for tubular sign posts and structural steel sign posts.

The department inspector will compare the drawings and weld procedures to the posts during post inspection at the point of fabrication. Submit weld procedures to the Project Manager for approval every 6 months or whenever they are changed or modified.

Submit shop drawings and welding procedures at one time in a complete package for the Department's initial and subsequent reviews. Individual parts of the submittal's will not be accepted for review.

**619.03.3 Fabrication and Erection.** Fabricate the signs and sign legends before delivery to the project, except for signs too large to transport in one piece to the project.

Fabricate all signs using the hole spacing specified in the FHWA Standard Highway Signs Book or the Detailed Drawings.

The lengths of poles and steel posts shown in the Contract are estimated lengths. The Project Manager will furnish the required length of each pole and steel post before fabrication is begun.

Locate and erect signs as specified or directed. The Project Manager may change sign locations due to field conditions. Erect signs so the sign face is vertical and aligned as specified. Sign supports must not project above the sign faces.

Jam the threads of the mounting bolts or use vandal resistant nuts for ground-mounted sign faces 25 square feet (2.3 m<sup>2</sup>) and smaller. Jam the threads after the sign is installed and adjustments are made.

The specified foundation depth for timber poles is a minimum depth. The Contractor may either field cut the poles to the correct length or bury the extra length to provide the specified mounting.

Excavate or bore foundation holes for sign supports at least 8-inches (205 mm) larger than the largest diameter of post placed in each hole.

Backfill foundation holes for timber posts and poles as follows:

Combine and thoroughly mix the material excavated from the foundation with portland cement using a mix ratio of 10 parts excavated material to 1 part cement. Do not mix in the hole. Add water to make the soil-cement mixture. Place the sign post or pole in the hole without the sign attached. Backfill the hole with the soil-cement mixture in 8-inch (205 mm) maximum lifts. Compact each lift by hand tamping or using mechanical methods. Allow the foundation to cure for 7 days before mounting the sign face to the support.

Foundation holes for wooden sign supports may be backfilled with Class "F" portland cement concrete using the specifications for backfilling foundations for steel sign posts as follows.

Backfill foundations for steel sign posts with Class "A" or "D" concrete finished flush with the adjacent surface. Signs may be post mounted after the concrete has set seven days.

Weld metal joints and post breaks meeting Section 556 requirements.

**619.03.4 Inspection.** The completed signs will be inspected at the fabricator's plant and on the project before they are installed. Defects including but not limited to cracks, tears, splits, crazing, gouges or curled edges of the background sheeting or legend are cause for rejecting the sign. The installed signs will be inspected at night for nighttime reflectivity and readability. Adjust signs exhibiting specular reflection, as directed.

**619.03.5 Sheet Aluminum Overlay.** Meet the Contract requirements for sheet aluminum overlays.

Install the sign legend and other components plumb and level. Match the color, shade, and type of existing reflective sheeting used as a background for partial overlays. Fully cover the existing legend and symbols with partial overlay backgrounds. Match the size of the existing sign with complete overlay backgrounds.

**619.03.6 Remove and Re-set Signs.** Use new materials meeting Section 704 requirements for that required over and above those materials salvaged from signs to be re-set or re-used.

Install breakaway devices on existing posts when specified.

Re-set signs meeting Subsection 619.03.3 requirements.

Repair or replace all Contractor sign damage resulting from dismantling, moving, and re-setting at Contractor expense.

With no exception, remount or re-set within 1 hour all removed warning, regulatory signs and route markers. Re-install guide signs within 5 hours and only during daylight hours. Re-display warning, regulatory, and guide signs by dusk.

Remove foundation material left after removing the existing signs to at least 1 foot (305 mm) below groundline. Fill resulting holes level with the adjacent ground.

Existing signs and supports specified for removal are the Contractor's property. Disassemble and store signs specified to remain the Department's property at the designated location.

Erect the new sign and support before removing the existing sign being replaced. Do not display conflicting signs together. Do not obscure existing signs when placing new signs.

Re-erect existing multiple support signs to be removed and re-set using the original post spacing.

**619.03.7 Installation Date Tags and Route Markers.** Install date tags and route identification tags on all highway signs before final acceptance.

Meet the Contract requirements for design, color, and installation.

**619.03.8 Delineators.** Furnish and install delineators as specified at the required locations. Remove delineators conflicting with new construction as specified.

Removed delineators are the Contractor's property and may be re-used, if they are undamaged and meet the Contract requirements.

**619.03.9 Guideposts.** Install guideposts at the specified locations.

**619.03.10 Acceptance.** Signs and traffic guide devices are accepted for payment individually or in lots as completed work once installed.

Delineator posts with reflectors are accepted in lots of 100 or more units.

Guide, directional, and warning signs with a surface area of up to 10 square feet (0.93 m<sup>2</sup>) on one side are accepted in lots of 25 or more.

Signs with a surface area of up to 30 square feet (2.8 m<sup>2</sup>) on one side are accepted in lots of 5 or more.

Overhead structures and signs larger than 30 square feet (2.8 m<sup>2</sup>) in sheeting area are accepted individually.

The Department will assume maintenance responsibility for signs and other traffic guide devices once accepted and in place.

Repair or replace signs and devices, at Contractor expense, that are damaged or destroyed by the Contractor's operations.

#### **619.04 METHOD OF MEASUREMENT.**

**619.04.1 Aluminum and Plywood Signs.** Aluminum sheet, aluminum sheet increment, and plywood signs are measured by the square foot (square meter) to the nearest 0.1 square foot (0.1 m<sup>2</sup>) of sign face.

**619.04.2 Metal Posts.** Metal posts are measured by the pound (kilogram). The pay weight is calculated by multiplying the nominal weight per foot (meter) by the installed length of each post plus the weight of the breakaway device, fuse plate, and stub post or foundation embedment. Breakaway systems, bid as a separate item, are measured separately.

**619.04.3 Treated Timber poles and posts.** Treated timber poles and posts are measured by the linear foot (meter) in even 2 foot (610 mm) increments. When the measurement falls between increments, the measured length for payment is the next higher 2 foot (610 mm) increment.

**619.04.4 Delineators.** Delineators of each type specified are measured by the unit, including delineator reflector, mounting hardware, and post, complete in place. Removing existing delineators is incidental to other items of the Contract.

**619.04.5 Guideposts.** Guideposts of each type specified are measured by the unit.

**619.04.6 Remove and Re-set Signs.** Re-set Signs - Guide and Re-set Signs - Warning, Regulatory, and Route Markers are measured by the unit for each sign removed and re-set in a new location.

Sign groups of 2 or more signs mounted on a single support or multiple supports are measured as a single sign.

When there is not a bid item in the Contract for re-set sign, this work is incidental to other items of the Contract.

**619.04.7 Remove Signs.** Remove Signs-Guide and Remove Signs - Warning, Regulatory, and Route Markers is measured by the unit for each sign removed including supports.

## SIGNS, DELINEATORS, AND GUIDEPOSTS

619.05

Sign groups of 2 or more signs mounted on a single support or multiple supports are measured as a single sign.

**619.04.8 Replace Signs.** New materials for signs designated "Replace" are measured under Subsections 619.04.1, .2, and .3.

Removal of existing signs designated "Replace" are measured under Subsection 619.04.7.

New materials for signs designated "Replace Sign Face" are measured under Subsection 619.04.1.

**619.04.9 Re-use Signs.** New material for supports for signs designated "Re-use" is measured under Subsections 619.04.2 and .3.

Removal of existing signs designated "Re-use" is measured under Subsections 619.04.7.

**619.04.10 Sheet Aluminum Overlay.** Sheet aluminum for signs designated "Sheet Aluminum Overlay" is measured by the square foot (square meter) to the nearest 0.1 square foot (0.1 m<sup>2</sup>) of sign face complete in place.

**619.04.11 Lump Sum.** When a signing system or portion thereof is specified in the Contract on a lump sum basis, no direct measurement of quantities is made.

**619.05 BASIS OF PAYMENT.** Payment for the completed and accepted work is made under the following:

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Aluminum and Plywood Signs	Square Foot (square meter)
Metal Sign Post	Pound (kilogram)
Breakaway System	Each
Timber Sign Post	Linear Foot (meter)
Delineators	Each
Guideposts	Each
Remove and Re-set Signs	Each
Remove Signs	Each
Sheet Aluminum Overlay	Square Foot (square meter)
Sign System	Lump Sum

Payment at the contract unit price is full compensation for all resources necessary to complete the item of work, including excavation and backfill, concrete foundation, miscellaneous hardware, welding, date tag and route identification tags and installation under the Contract.